

# Undecylenic Acid, USP

## PRODUCT IN FOCUS



## Undecylenic acid, USP

### INTRODUCTION

Undecylenic acid is an unsaturated fatty acid naturally derived from castor oil. It is a colorless to pale yellow liquid with antifungal and antimicrobial properties. Chemically known as 10-undecenoic acid, it contains an 11-carbon chain with one double bond and is widely used in pharmaceuticals, cosmetics, personal care products, and chemical intermediates. It is especially effective against fungal infections of the skin and nails.

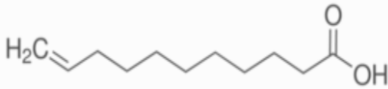
### MANUFACTURE

It is mainly manufactured from castor oil through the following process:

1. Castor oil is hydrolyzed to obtain ricinoleic acid.
2. Ricinoleic acid undergoes pyrolysis (thermal cracking) to produce undecylenic acid and heptaldehyde as a by-product.
3. The crude product is purified by distillation to obtain high-purity undecylenic acid.

### APPLICATIONS

- ✔ Used as an antifungal agent in creams, ointments, powders, and sprays for treating athlete's foot, ringworm, and other fungal infections.
- ✔ Used in the manufacture of undecylenate salts and esters for pharmaceutical and cosmetic applications.
- ✔ Acts as an intermediate in perfumes, lubricants, resins, and specialty polymers.
- ✔ Used in personal care products such as deodorants, soaps, and shampoos due to its antimicrobial activity.
- ✔ Utilized in chemical synthesis for plasticizers, surfactants, and specialty chemicals.

<b>Synonym(s)</b>	10-Undecenoic Acid; 10-Henedecenoic Acid; Declid; Desenex; 9-Undecylenic acid
<b>CAS no.</b>	112-38-9
<b>EINECS no.</b>	203-965-8
<b>Molecular formula</b>	$C_{11}H_{20}O_2$
<b>Molecular weight</b>	184.28
<b>Structure</b>	

# Undecylenic Acid, USP

## PRODUCT IN FOCUS



### SPECIFICATIONS (USP & In-house)

Test	Unit	Specification
Appearance	-	Clear, colorless to pale yellow liquid having a characteristic odor
Solubility	-	Practically insoluble in water, Miscible with alcohol, with Chloroform, with Ether, with Benzene & fixed & volatile oils
<b>Identification</b>		
A. Spectroscopic identification test-IR spectroscopy	-	The infrared spectrum of sample preparation should exhibit maxima only at the same wavelengths as that of a similar preparation of working standard
B. The retention time of the undecylenic acid peak of the sample solution corresponds to that of the standard solution, as obtained in assay	-	Retention time should comply
Residue on Ignition	%	NMT 0.15
Water soluble acids	%	NMT 1.0 ml of 0.01N Sodium Hydroxide require for test
Specific gravity (at 25°C)	-	0.910 – 0.913
Iodine value	gl <sub>2</sub> /100g	131 – 138
Assay (by GC)	%	97.0 – 102.0
<b>Residual solvent</b>		
▪ Methanol	ppm	NMT 3000
<b>Microbiological analysis</b>		
▪ Total microbial count	cfu/gm	Max 100
▪ <i>Escherichia coli</i>	-	Should be absent
▪ <i>Salmonella spp</i>	-	Should be absent
▪ <i>Pseudomonas aeruginosa</i>	-	Should be absent
▪ <i>Staphylococcus aureus</i>	-	Should be absent

OINTMENTS

SHAMPOOS

# Undecylenic Acid, USP

CREAMS

DEODORANTS

PERFUME OILS

## PRODUCT IN FOCUS



### PACKING

25 kg UN approved carboy

### STORAGE

Store product in its original container. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

### REACH status

Not registered

ExSyn offers Undecylenic acid on commercial scales and welcomes enquiries. Our exceptional quality and service will make ExSyn your supplier of choice! If you need additional information or SDS, please contact us.